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TITLE: COMMUNICATION APPARATUS, COMMUNICATION  
SYSTEM, AND METHOD OF SAME

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COMMUNICATION APPARATUS, COMMUNICATION SYSTEM, AND METHOD

OF SAME

5 BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a communication apparatus capable of controlling an output format of an advertisement automatically transmitted together with a program at a reception side, a  
10 communication system, and a method of the same.

2. Description of the Related Art

At the present time, in the broadcast of programs by for example television or radio, the advertisement of a company sponsoring a related program  
15 is broadcast simultaneously with the program or between programs under the control of the transmission side.

Also, when information in accordance with a request from a user is provided via the Internet or the  
20 like from a server to a terminal, sometimes a banner advertisement or the like is automatically inserted at part of the screen displaying the information requested by the user regardless of the wishes of the user.

In the conventional method of advertisement  
25 mentioned above, however, the advertisement is provided

from the transmission side to the reception side  
regardless of the preferences and wishes of the user, so  
sometimes the user receives a large number of  
advertisements in which it is not interested. There is  
5 the problem that this bothers the user.

#### SUMMARY OF THE INVENTION

An object of the present invention is to provide a  
communication apparatus, a communication system, and a  
10 method of same enabling control of the type of output of  
additional information such as advertisements on the user  
side receiving the advertisements.

In order to achieve the above object, according to a  
first aspect of the present invention, there is provided  
15 a communication apparatus comprising a receiving means  
for receiving a signal comprised of a mix of a program  
signal and an additional signal, a separating means for  
separating the program signal and the additional signal  
from the received signal, a determining means for  
20 determining whether or not to output in accordance with  
the additional signal, an output signal generating means  
for generating the output signal by using the separated  
program signal and additional signal when it is decided  
to output in accordance with the additional signal and  
25 for generating the output signal by using the separated

program signal where it is determined not to output in accordance with the additional signal, and an outputting means for outputting information in accordance with the generated output signal.

5       The mode of operation of the communication apparatus of the first aspect of the present invention is as follows.

      The receiving means receives a signal comprised of a mix of a program signal and an additional signal.

10       The determining means decides whether or not to output in accordance with the additional signal.

      The separating means separates the program signal and the additional signal from the received signal.

      Next, the output signal generating means generates  
15   an output signal using the separated program signal and the additional signal when it is decided to output in accordance with the additional signal and generates an output signal using the separated program signal when it is decided not to output in accordance with the  
20   additional signal.

      The communication apparatus preferably further has a transmitting means for transmitting log information indicating a log of decisions whether or not to output in accordance with the additional signal to a transmitting  
25   side of the received signal.

Preferably the receiving means receives a signal comprised of a mix of a program signal and an advertisement signal.

According to a second aspect of the present invention, there is provided a communication system comprising a first communication apparatus for transmitting a signal comprised of a mix of a program signal and an additional signal and a second communication apparatus for receiving a signal transmitted by the first communication apparatus, the second communication apparatus comprising: a receiving means for receiving the signal transmitted by the first communication apparatus, a separating means for separating the program signal and the additional signal from the received signal, a determining means for deciding whether or not to output in accordance with the additional signal, an output signal generating means for generating an output signal by using the separated program signal and the additional signal when it is decided to output in accordance with the additional signal and generating an output signal by using the separated program signal where it is decided not to output in accordance with the additional signal, and an outputting means for outputting information in accordance with the generated output signal.

Preferably, the communication system further has a transmitting means for transmitting log information indicating a log of decisions of whether or not to output in accordance with the additional signal to the transmitting side of the received signal and the first communication apparatus charges the user of the first communication apparatus based on the log information received from the second communication apparatus.

Preferably, the first communication apparatus transmits a signal comprised of a mix of a program signal and an advertisement signal and performs processing for reducing a fee charged to the user of the second communication apparatus for transmission of the program signal when the advertisement signal was output in the second communication apparatus based on the log information received from the second communication apparatus.

Preferably, the first communication apparatus performs processing for reducing the fee charged to the user of the second communication apparatus for transmission of the program signal when the additional signal was output in the second communication apparatus based on the log information received from the second communication apparatus.

Preferably, the first communication apparatus

charges the user of the second communication apparatus according to a condition determined in advance.

Preferably, the first communication apparatus transmits a signal comprised of a mix of a program signal  
5 and an advertisement signal.

According to a third aspect of the present invention, there is provided a communication apparatus comprising: an operating means operated by a user, a transmitting means for issuing a request instructing the  
10 transmission of an additional signal in accordance with operation of the operating means by the user, a receiving means for receiving a signal comprised of a mix of a program signal and an additional signal in accordance with the request, a separating means for separating the  
15 program signal and the additional signal from the received signal, an output signal generating means for generating an output signal by using the separated program signal and additional signal, and an outputting means for output information in accordance with the  
20 generated output signal.

According to a fourth aspect of the present invention, there is provided a communication method of a reception side of a signal comprising of a mix of a program signal and an additional signal, comprising the  
25 steps of: separating a program signal and an additional

signal from a received signal, determining whether or not  
to output in accordance with the additional signal,  
generating an output signal by using the separated  
program signal and additional signal where it is decided  
5 to output in accordance with the additional signal,  
generating an output signal by using the separated  
program signal when it is decided not to output in  
accordance with the additional signal, and outputting  
information in accordance with the generated output  
10 signal.

The communication method preferably further  
comprises the steps of transmitting log information  
indicating a log of decision of whether or not to output  
in accordance with the additional signal from the  
15 reception side to the transmission side and charging the  
reception side user based on the log information on the  
transmission side.

The communication method preferably further  
comprises the steps of transmitting a signal comprised of  
20 a mix of a program signal and advertisement signal  
therein from the transmission side to the reception side  
and has the transmission side performing processing for  
reducing a fee charged to the reception side user for  
transmission of the program signal where the  
25 advertisement signal is output on the reception side



based on the log information received from the reception side.

The communication method is preferably further comprised of a step of processing for increasing the fee charged to the reception side user for transmission of the program signal on the transmission side when the additional signal is output on the reception side based on the log information received from the reception side.

#### 10 BRIEF DESCRIPTION OF THE DRAWINGS

These and other objects and features of the present invention will be more apparent from the following description given with reference to the accompanying drawings, wherein:

15 Fig. 1 is a view of the configuration of a communication system of a first embodiment of the present invention;

Fig. 2 is a flowchart for explaining an example of an operation of a broadcast system shown in Fig. 1; and

20 Fig. 3 is a flowchart for explaining an example of the operation of the broadcast system shown in Fig. 1.

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

Below, an explanation will be made of a broadcast system according to an embodiment of the present

25

invention.

Figure 1 is a view for explaining a broadcast system 61 of the present embodiment.

As shown in Fig. 1, the broadcast system 61 has for  
5 example a broadcast station side broadcast apparatus 60  
and a user side receiving apparatus 70, transmitter 80,  
log information generator 81, and operation unit 82.

Here, the embodiment of the first aspect of the  
invention is comprised by the receiving apparatus 70,  
10 transmitter 80, log information generator 81, and  
operation unit 82. The broadcast system 61 corresponds to  
an embodiment of the second aspect of the invention.

Also, the broadcast apparatus 60 corresponds to the  
first communication apparatus of the second aspect of the  
15 invention, and the receiving apparatus 70, transmitter  
80, log information generator 81, and operation unit 82  
correspond to the second communication apparatus of the  
second aspect of the invention.

[Broadcast Apparatus 60]

20 The broadcast apparatus 60 is a broadcast apparatus  
for example for a digital broadcast or streaming  
broadcast.

The broadcast apparatus 60 generates a broadcast  
signal S60 comprised of a mix of a program signal PS and  
25 an additional signal AS and broadcasts the related

broadcast signal S60 to the user side receiving apparatus 70 by a wired or wireless method. In the present embodiment, the broadcast signal S60 is for example a bit stream. The related additional signal AS is for example a signal giving an explanation of the program or a signal of an advertisement.

Also, the broadcast apparatus 60 receives the log information from the user side transmitter 80 and charges the related user based on the related log information.

Specifically, the broadcast apparatus 60 determines the viewing fee charged to the related user based on the display of an image from the additional signal on the display 76 by the related user described in the received log information.

For example, the broadcast apparatus 60 performs charge processing so as to bill the user the viewing fee of a pay program minus a predetermined amount when the user displays an image from the additional signal of the advertisement on the display.

Also, the broadcast apparatus 60 performs charge processing so as to bill the user the viewing fee of a pay program plus a predetermined amount when the user displays for example an image from an additional signal providing an additional service such as an explanation in addition to the program on a display 76.

[Receiving Apparatus 70]

As shown in Fig. 1, the receiving apparatus 70 has for example a receiver 71, filter 72, program signal use memory 73, additional signal use memory 74, video RAM 75, display 76, and controller 77.

Here, the receiver 71 corresponds to the receiving means of the second and third aspects of the invention, the filter 72 corresponds to the separating means of the second and third aspects of the invention, the operation unit 82 shown in Fig. 1 corresponds to the determining means of the second and third aspects of the invention, the controller 77 corresponds to the output signal generating means of the second and third aspects of the invention, and the display 76 corresponds to the outputting means of the second and third aspects of the invention.

The receiver 71 receives the broadcast signal S60 transmitted by the broadcast apparatus 60, performs a processing such as demodulation, decoding, and error correction according to need, and then outputs the related broadcast signal to the filter 72.

The filter 72 separates the program signal PS and the additional signal AS mixed in the broadcast signal input from the receiver 71, writes the separated program signal PS in the program signal use memory 73, and writes

the separated additional signal AS in the additional signal use memory 74.

5 The video RAM 75 stores the program signal PS read from the program signal use memory 73 and the additional signal AS read from the additional signal use memory 74 according to need as the output use image signal under the control of the controller 77.

The display 76 displays an image corresponding to the image signal read from the video RAM 75.

10 The display 76 displays, in addition to the image corresponding to the program signal PS, an image corresponding to the additional signal AS according to need in accordance with a display instruction of the user using the operation unit 82.

15 In this case, the image corresponding to the additional signal AS may be displayed simultaneously with the image corresponding to the program signal PS (inside the same window or outside the window of the program) or may be displayed in the middle of the program.

20 The controller 77 writes the program signal read from the program signal use memory 73 and the additional signal AS read from the additional signal use memory 74 according to need in the video RAM 75 in accordance with the display instruction by the user using the operation  
25 unit 82.

The operation unit 82 is for example a remote controller operated by the user and outputs an operation signal in accordance with an operation by the user on the controller 77.

5           [Transmitter 80]

The transmitter 80 transmits the log information (log) input from the log information generator 81 to the broadcast apparatus 60 by a wired or wireless method.

In the present embodiment, the transmitter 80  
10 transmits log information via a telephone line to the broadcast apparatus 60.

[Log Information Generator 81]

The log information generator 81 generates log information giving a log of the instructions of the  
15 related display in accordance with the display instruction of the image in accordance with the additional signal by the user based on the operation signal from the operation unit 82 and the control log information from the controller 77 and outputs this to  
20 the transmitter 80.

[Operation Unit 82]

The operation unit 82 is for example a mouse, keyboard, or remote controller and is used by the user for instructing whether or not to display an image  
25 corresponding to the additional signal or indicating the

format of the related display etc.

Below, an explanation will be made of an example of the operation of the broadcast system 61.

Figure 2 is a flowchart for explaining an example of  
5 operation of the broadcast system 61 shown in Fig. 1.

Step ST1

The broadcast apparatus 60 generates a broadcast  
signal S60 comprised of a mix of a program signal PS and  
an additional signal AS and broadcasts the related  
10 broadcast signal S60 to the receiving apparatus 70 on the  
user side by a wired or wireless method.

Step ST2

The broadcast signal S60 is received at the receiver  
71 of the receiving apparatus 70, processed for  
15 demodulation, decoding, error correction, etc. at the  
receiver 71, and then output to the filter 72.

Step ST3

The filter 72 of the receiving apparatus 70  
separates the program signal PS and the additional signal  
20 AS mixed in the broadcast signal S60.

Step ST4

The program signal PS separated at step ST3 is  
written into the program signal use memory 73, while the  
separated additional signal AS is written into the  
25 additional signal use memory 74.

Step ST5

When an instruction indicating to display an image corresponding to the additional signal AS is output by the operation unit 82, the processing of step ST6 is  
5 executed, while the processing of step ST7 is executed in other cases.

Step ST6

Under the control of the controller 77 of the receiving apparatus 70, the program signal PS read from  
10 the program signal use memory 73 and the additional signal AS read from the additional signal use memory 74 are written into the video RAM 75 as the output use image signals.

Then, the display 76 displays an image in accordance  
15 with the program signal PS and an image in accordance with the additional signal AS.

Step ST7

Under the control of the controller 77 of the receiving apparatus 70, the program signal PS read from  
20 the program signal use memory 73 is written into the video RAM 75 as the output use image signal.

Then, the display 76 displays an image corresponding to the program signal PS, but does not display an image corresponding to the additional signal AS.

25 Step ST8



The log information generator 81 generates log information indicating a log of the display instructions of images corresponding to the additional signal by the user based on the operation signal from the operation  
5 unit 82 and the control log information from the controller 77 and transmits the related log information from the transmitter 80 to the broadcast apparatus 60.

Then, the broadcast apparatus 60 charges the related user based on the log information received from the  
10 transmitter 80 on the user side.

As explained above, according to the broadcast system 61, whether or not to display an image corresponding to the additional signal AS contained in the broadcast signal S60 on the display 76 can be  
15 determined by the user on the reception side. Namely, the display format of the image corresponding to the broadcast signal S60 can be determined on the reception side matching the preference of the user. For this reason, a service attractive to the user can be provided.  
20 Also, the broadcast station can provide a variety of services to the user by using an additional signal AS other than a broadcast of the program, so it becomes possible to link up a program broadcast and various businesses.

25 Also, according to the broadcast system 61, by

reflecting the display of an image corresponding an  
additional signal AS by a user in the sum charged for the  
program service, utilization of a related service by the  
user can be promoted and new businesses other than the  
5 program broadcast can be created.

While the invention has been described with  
reference to a specific embodiment chosen for purpose of  
illustration, it should be apparent that numerous  
modifications could be made thereto by those skilled in  
10 the art without departing from the basic concept and  
scope of the invention.

For example, in the above embodiment, in the  
receiving apparatus 70 shown in Fig. 1, the case where  
the display of an image corresponding to the additional  
15 signal AS was selected after receiving the additional  
signal AS was exemplified, but it is also possible to  
transmit a request specifying the additional signal AS  
intended by the user from the transmitter 80 to the  
broadcast apparatus 60 in accordance with the operation  
20 of the operation unit 82 by the user and transmit an  
additional signal AS corresponding to the related request  
to the receiving apparatus 70 by the broadcast apparatus  
60.

Also, in the above embodiment, the case where a  
25 broadcast signal S60 containing a program signal PS and

an additional signal AS was transmitted to the receiving apparatus 70 by using the broadcast apparatus 60 was exemplified, but the present invention can also be applied to a case where for example a server connected to a network such as the Internet is used in place of the broadcast apparatus 60, and the related server provides picture and sound information to the receiving apparatus 70 in accordance with the request from the receiving apparatus 70.

Also, in the above embodiment, it is also possible to perform the charge processing by the broadcast apparatus 60 in accordance with the display of the additional signal on the user side based on for example a viewing agreement made in advance or two-way between the transmitter 80 and the receiving apparatus 70 and the broadcast apparatus 60.

Summarizing the effect of the invention, as explained above, according to the present invention, a communication apparatus, communication system, and method of same enabling control of the mode of output of the related additional signal on a reception side of the additional signal other than the program signal can be provided.

For this reason, automatic output on the reception side of a large amount of additional information of no

interest to the user on the reception side can be avoided.